

South Dakota

*Department of Environment
& Natural Resources*

Protecting SD's Tomorrow... Today

South Dakota Drinking Water Regulations Summary

**Drinking Water Program
523 E. Capitol - Joe Foss Building
Pierre, SD 57501-3181
(605) 773-3754**

<http://www.state.sd.us/denr/dw>

February 29, 2000

Dear Water System Manager/Owner:

The Department of Environment and Natural Resources-Drinking Water Program is responsible for developing and enforcing the requirements of the South Dakota Drinking Water Standards that apply to public water systems. A "public water system" is one that provides water to at least 25 people or 15 service connections for at least 60 days per year.

As an owner/manager of a public water system you are responsible for:

1. Submitting water samples for testing of various drinking water contaminants;
2. Complying with the maximum contaminant levels for regulated contaminants; and
3. Notifying your consumers when the water system does not meet the Standards.

The attached packet of information describes the South Dakota Drinking Water Standards and how they pertain to your water system. Additional information can be obtained from:

Drinking Water Program - DENR
523 E. Capitol Avenue
Pierre, SD 57501-3181
Phone: (605) 773-3754
Fax: (605) 773-5286
Internet: <http://www.state.sd.us/denr/dw>

Our goal is ensure that the citizens of South Dakota have the best and safest drinking water possible. If you have questions on any drinking water matters, feel free to contact me.

Sincerely,

Darron Busch
Administrator

Attachments

SUMMARY OF THE SOUTH DAKOTA DRINKING WATER STANDARDS-2/2000

The South Dakota Drinking Water Standards became effective in September, 1983 as part of South Dakota's responsibilities under the Federal Safe Drinking Water Act (SDWA). The SDWA was amended in 1996 to address more drinking water concerns. In South Dakota, the Drinking Water Program (DWP), Department of Environment and Natural Resources (DENR) is responsible for the enforcement of the standards. Suppliers of drinking water have important responsibilities under the standards. Suppliers should have a good working knowledge of the standards for their system to be in compliance.

The standards apply to all **public water systems** (PWS). A PWS is any water system that serves 15 connections or 25 people per day for 60 days per year. There are several types of PWS. **Community PWS** are water systems that serve a residential population such as municipalities, rural water systems, mobile home courts, housing developments, etc. **Transient Non-Community PWS** are water systems that serve a transient or nonresidential population such as camp grounds, rest stops, resorts, etc. **Non-Transient Non-Community (NTNC) PWS** are water systems that serve the same nonresidents for at least six months per year such as day cares, factories, and schools.

The most important section of the standards concerns sampling of various contaminants of drinking water. Non-transient non-community water systems sample at the same frequency as community systems unless noted differently. The initial sampling needs of a PWS are listed below. The maximum contaminant levels (MCL) for each parameter are listed as an attachment to this pamphlet. Follow-up sampling will depend on the results of the initial sampling results.

1. **Total Coliform (Bacteria)**-Monthly. The number of samples depends on the population served. Samples are taken at designated sampling sites in the distribution system.
2. **Inorganic Chemicals (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Mercury, Nickel, Selenium, Thallium, and Fluoride)**-Every three years for groundwater systems. Annually for surface water supplies. Entry point sampling. Fluoride monitoring for community systems only. Sulfate (an unregulated IOC) is also monitored with the inorganics group. Waivers are available to reduce IOC sampling to every nine years.
3. **Asbestos**-One sample every nine years. Samples are taken at sites served by asbestos-cement pipe. Waivers are available to eliminate this sampling.
4. **Nitrite**-One sample every three years. Entry point sampling.

5. **Nitrate**-Entry point sampling.

	<u>Initial Monitoring</u>	<u>Subsequent Monitoring</u>
Surface Water	Quarterly	Annual
Groundwater	Annual	Annual

6. **Radiological Chemicals**-The initial sampling is a year of quarterly samples. Follow-up sampling depends on the results of the average of the initial four quarterly samples. Distribution system monitoring. (Community systems only.)

<u>Initial Radium (Ra) 226-228 Result</u>	<u>Frequency of Sampling</u>
< 2.5 pCi/l*	Every four years
2.5 to 5.0 pCi/l	Annually
> 5.0 pCi/l	Quarterly

*pCi/l stands for picocuries per liter.

7. **Synthetic Organic Chemicals (SOC) including Pesticides**-Initial sampling is four quarterly samples. Entry point sampling. Repeat sampling is two quarterly samples every three years for systems serving more than 3300 people. Repeat sampling is one sample every three years for systems serving less than 3300 people. Some unregulated chemicals are also monitored. Waivers are available to eliminate this sampling.
8. **Trihalomethanes (THMs)**-The initial sampling is a year of intensive quarterly monitoring. This is only for community systems that disinfect and serve more than 10,000 people. Groundwater systems can be reduced to one annual sample and surface water systems can be reduced to one sample per quarter. These regulations are currently being changed by EPA.
9. **Turbidity/Disinfection Residuals**-Daily for all surface water and groundwater under the direct influence of surface water. Reports must be submitted to DENR on a monthly basis.
10. **Volatile Organic Chemicals (VOC)**-The initial sampling is a year of quarterly samples. Entry point sampling. Systems with no detections can be reduced to annual sampling. Groundwater systems can then be reduced to one sample every three years after three years of annual monitoring with no detections. Some unregulated VOCs are also monitored. Waivers are available to reduce this sampling to every six years.
11. **Lead and Copper**-Tap monitoring will be of first draw water and will take place at pre-approved by the State sites. These sites include high risk homes such as those with lead service lines or new lead solder (applied since 1982).

The number of samples to be taken every six months (Jan-June and July-Dec compliance periods) is as follows:

		Number of Samples	
Population Served		Baseline Mon.	Reduced Mon.
>100,000		100	50
10,001-100,000	60		30
3,301-10,000		40	20
501-3,300		20	10
101-500	10		5
<101		5	5

Systems in compliance with the lead/copper action levels may be able to reduce monitoring to an annual basis after two consecutive six month monitoring periods in accordance with the above table. These systems may go to monitoring every three years after three years of annual monitoring.

Water systems exceeding the lead or copper action levels must treat their water to reduce corrosive effects and must monitor for water quality parameters.

Other Sampling Information

Waivers to reduce or eliminate sampling may be obtained for various parameters including asbestos, VOCs, IOCs, and SOCs. Waiver criteria are based on previous sampling, chemical use, and vulnerability of sources.

All compliance analyses must be performed by a state or EPA certified laboratory. The results of analyses performed by laboratories outside of South Dakota must be reported to the DWP. Monitoring requirements are sent every January to each water system to inform them of the required monitoring for the calendar year. It is up to the water system to then arrange to have the analyses performed with a certified laboratory.

Entry point sampling refers to samples being taken at a point where a source or sources enter the distribution system.

The Standards also require sampling for sodium and corrosivity; however, these parameters are analyzed every two years when the DWP performs a sanitary survey on a water system and takes a chemical sample.

A ***consecutive water system*** is a situation where a water system is served by another public water system. The original system supplying the water must analyze for the chemical parameters. The consecutive water system must be receiving at least 75% of its water from another PWS to be excused from all sampling except total coliform, asbestos, VOC, and lead/copper analyses as of this date.

When a water supply exceeds an MCL, repeat/confirmation samples may be necessary to confirm the analytical result. If the results are confirmed, these systems must take steps to get their water systems into compliance with the MCL and have to issue a public notice to its customers concerning the violation. The purpose of the public notice is to increase the public awareness of the problems water systems face and of the true cost of safe drinking water. A public notice must also be issued if required monitoring is not performed. The Public Notification Handbook is available from the DWP and from our web site.

Sample results must be kept as part of a system's records. Total coliform records must be kept for five years, lead/copper records for twelve years, and other chemical results for ten years. Actual laboratory results may be kept or the results may be summarized in tabular form.

A key water supplier responsibility is to see that the proper number and type of samples are taken. Unfortunately, too many operators take sampling for granted. Sloppy practices will result in contaminated samples that are not representative of the actual water quality.

Operator Certification

As of July 1, 2000, the following systems must be managed by a state certified water operator:

1. All community and NTNC water systems
2. Any water system using surface water or utilizing disinfection equipment

Training courses are provided by the SD Rural Water Association, and exams are given 12-18 times per year across the state. There are experience and educational requirements to take certification exams. There is an operator certification web site at <http://www.state.sd.us/opercert>.

Capacity Development

New Water Systems

All new community and non-transient non-community water systems that begin operation after October 1, 1999 are required to obtain a certificate of approval from the department before beginning operation. The certificate of approval is issued after the applicant submits all required documentation that demonstrates the system has adequate technical, managerial, and financial capacity. A planning manual is available to help applicants through the process. This manual can be downloaded from the DWP web site or can be obtained by calling the DWP.

Existing Water Systems

The DWP is in the process of developing a program that will assist existing water system in acquiring and maintaining technical, managerial, and financial capacity. For more information, visit our web site or call our office.

Consumer Confidence Reports

Every community water system must issue a Consumer Confidence Report each year by July 1. This report must describe the quality of the water provided to consumers. The Consumer Confidence Report is the centerpiece of many provisions adopted in the 1996 Amendments to the Safe Drinking Water Act to give consumers more information on their drinking water and unprecedented opportunities to get involved in protecting it.

The final rule includes requirements that the reports must tell consumers:

- the lake, river, aquifer, or other source of the drinking water;
- a brief summary of the susceptibility to contamination of the local drinking water source, based on the source water assessments that states are completing over the next five years;
- how to get a copy of the water system's complete source water assessment;
- the level (or range of levels) of any contaminant found in local drinking water, as well as EPA's health-based standard (maximum contaminant level) for comparison;
- the likely source of that contaminant in the local drinking water supply;
- the potential health effects of any contaminant detected in violation of an EPA health standard, and an accounting of the system's actions to restore safe drinking water; information about how vulnerable populations can avoid *Cryptosporidium*.
- the water system's compliance with other drinking water-related rules;
- an educational statement for vulnerable populations about avoiding *Cryptosporidium*;
- educational information on nitrate, arsenic, or lead in areas where these contaminants are detected above 50% of EPA's standard; and
- phone numbers of additional sources of information, including the water system.

Miscellaneous Regulations

A one time public notice on the health effects of lead (Pb) must be issued to each customer of a community PWS. This deals with the possible leaching of lead from solder and piping into the water. This requirement now affects only newly developed water systems. Established systems had to have issued the notice by June 19, 1988. Established systems must notify any new customers of the possible lead health effects.

There is also a set of regulations concerning the use of surface water or groundwater under the direct influence of surface water. For information on these regulations, please contact the DWP.

Because of the 1996 Amendments to the SDWA, the drinking water regulations will be constantly changing for the next several years. Changes will include operator certification, sampling for disinfection by-products, and mandatory disinfection for all supplies. Water systems will be notified by DWP when these regulations will affect their systems. However, systems must make preparations for future regulatory effects, especially for the costs of increased monitoring and possible water treatment equipment purchases.

Please note that this summary does not substitute for the actual regulations.

If there are any questions on drinking water, please contact the Drinking Water Program, Foss Building, 523 East Capitol, Pierre, SD 57501-3181 (Phone: 605-773-3754 Fax: 605-773-5286). The Drinking Water Program also has a homepage on the Internet. The Internet address is : <http://www.state.sd.us/denr/dw>

The DWP has personnel located in the following regional offices:

Black Hills Regional Office	394-2229
Northeast Lakes Regional Office	882-5111
Vermillion Regional Office	677-6165

Drinking Water Standards

2/28/2000

<i>REGULATED ORGANICS</i>	MCL		
VOCs	ug/L	Trade name, synonym, etc.	Use
1,1,1-Trichloroethane	200	Methyl chloroform	metal degreasing, pesticides
1,1,2-Trichloroethane	5	Vinyl trichloride	solvent for fats, waxes, alkaloids, resins
1,1-Dichloroethylene	7	Vinylidene chloride (VC)	making of "saran", adhesives, synthetic fibers
1,2,4-Trichlorobenzene	9	Trichlorobenzene	termite control
1,2-Dichloroethane	5	Ethylene dichloride, EDC	solvent, fumigant, lead antiknock in gas
1,2-Dichloropropane	5	Propylene dichloride	solvent, lead antiknock, metal degreasing
Benzene	5	Benzol	component of gas, degreaser, solvent
Carbon tetrachloride	5	Tetrachloromethane	refrigerant, fumigant, solvent, extinguishers
cis-1,2-Dichloroethylene	70	Acetylene dichloride, Dioform	solvent, retarding fermentation
Dichloromethane	5	Methylene chloride	paint remover, solvent/degreasing, aerosol
Ethylbenzene	700	phenylethane	resin solvent, intermediate in mfg. of styrene
Monochlorobenzene	100	Chlorobenzene, phenyl chloride	solvent, heat transfer, phenol
o-Dichlorobenzene	600	1,2-dichlorobenzene	solvent, pesticide
para-Dichlorobenzene	75	Paracide, PDB	insecticidal fumigant, moth repellent
Styrene	100	Polysytrene	packaging, insulator (foam)
Tetrachloroethylene	5	PCE, tetrachloroethene	dry cleaning, solvent, heat transfer
Toluene	1000	methyl benzene, phenyl methane	gas additive, solvent, mfg. chemicals/explosives
trans-1,2-Dichloroethylene	100	Acetylene dichloride, Dioform	solvent, retarding fermentation
Trichloroethylene	5	TCE, trilene, trichloroethene	degreasing, solvent, dry cleaning, fumigant
Vinyl chloride	2	Chloroethylene	plastics industry, refrigerant
Xylenes (total)	10,000	Dimethylbenzene	used in gas, solvents, pesticides

<i>REGULATED ORGANICS</i>	MCL		
SOCs	ug/L	Trade name, synonym, etc.	Use
2,3,7,8-TCDD	3E-05	Dioxin	contaminant in 2,4,5-T; defoliant
2,4,5-TP	50	2,4,5-Trichlorophenoxyacetic acid	herbicide, defoliant, plant hormone
2,4-D	70	Hedonal, Trinoxol	herbicide
Alachlor	2	Lasso, Alanex, metachlor	herbicide for corn, beans, soybeans, peanuts
Atrazine	3	AAtrex, Primatol A, Bicep	herbicide for corn, sorghum, other crops
Benzo(a)pyrene	0.2	Polynuclear aromatic hydrocarbon	product of incomplete combustion
Carbofuran	40	Furadan	insecticide, nematocide, miticide for crops
Chlordane	2	Velsicol 1068, Belt, Chlor Kill	insecticide, fumigant (termites)
Dalapon	200	Dowpon, Radapon, Basafapon	herbicide for grasses, cattails, rushes
Di(ethylhexyl) adipate	500	DEHA, Adipates	plasticizer – synthetic rubber, food pkg, cosmetics
Di(ethylhexyl)phthalate	4	DEHP, Phthalates	plasticizer for PVC resins
Dibromochloropropane	0.2	DBCP, 1,2-Dibromo-3-chloropropane	nematocide, soil fumigant, pesticide
Dinoseb	7	DNBP, Basanite, Caldon	herbicide, insecticide, miticide, fungicide
Diquat	20	Dextrone, Actor, Reglone	herbicide/potato vines, seed crops, sugar cane
Endothall	100	Aquathol, Hydout	herbicide/sugar beets, turf, hops, alfalfa, clover
Endrin	2	Hexadrin	insecticide
Ethylene dibromide	0.05	EDB	fumigant, insecticide, solvent, antiknock for gas
Glyphosate	70	Roundup, Rodeo, Kleenup, Shackle	non-selective broad-spectrum herbicide
Heptachlor	0.4	Velsicol-104, Drinox	termite control
Heptachlor epoxide	0.2	(unknown)	degradation/oxidation product of heptachlor
Hexachlorobenzene	1	Perchlorobenzene	waste - CL2 reactions, wood preserv., fungicide
Hexachlorocyclopentadiene	50	HEX, Perchlorocyclopentadiene	pesticides, flame retardant, fungicide
Lindane	0.2	gamma hexachlor, Lindafor	insecticide for tobacco, fruit/nut trees, vegetables
Methoxychlor	40	Methoxy-DDT, Marlata	insecticide for trees, gardens, cattle, farm buildings
Oxamyl	200	Vydate, Thioxamyl	insecticide/nematocide for crops, fruits, vegetables
Pentachlorophenol	200	PCP, Penta	wood preservative for fungus/termite/beetle, molluscicide

Picloram	500	Tordon, Pinene	herbicide for weeds/woody plants, brush control
Polychlorinated biphenyl's	0.5	PCB's, Aroclor	in electrical transformers & capacitors
Simazine	1	Primatol S, Princep, Simanex	herbicide for grasses/weeds in many crops
Toxaphene	3	Chlorinated camphene	insecticide

ORGANCS REGULATED BY TREATMENT TECHNIQUE - No MCL

SOCs	Trade name, synonym, etc.	Use
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Acrylamide	*	Propenamide	flocculant for WTPs
Epichlorohydrin	*	Chloromethyloxirane	flocculant for WTPs, epoxy & phenoxy resins

UNREGULATED ORGANICS

SOCs	Trade name, synonym, etc.	Use
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3-Hydroxycarbofuran	(No data)	(No data)
Aldicarb	Temik	insecticide/nematocide on sorghum, beets, soybeans
Aldicarb sulfone	(unknown)	systemic insecticide, nematocide
Aldicarb sulfoxide	(unknown)	pesticide, nematocide
Aldrin	Aldrex, Aldrite, Alttox	controls soil insects/termites (use cancelled in U.S.)
Butachlor	Lambast, CP 53619, Aimchlor	controls weeds in rice
Carbaryl	Sevin, NAC	insecticide for crops, rangeland, trees, turf
Dicamba	Banvel D, Mediben, Mondak	broadleaf herbicide
Dieldrin	HOED	insecticide (use cancelled in U.S.)
Methomyl	Lannate, Nudrin	insecticide for vegetables, soybeans, fruits
Metolachlor	Dual	herbicide for corn, soybeans, sorghum, potatoes
Metribuzin	Lexone, Sencor	herbicide for grasses/broadleaves in crops
Propachlor	Prolex, Ramrod, Bexton	controls grasses/broadleaves on many soil types

UNREGULATED ORGANICS

VOCs	Trade name, synonym, etc.	Use
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1,1,1,2-Tetrachloroethane	TetraClethane	solvent, weed killer, paint remover, degreaser
1,1,2,2-Tetrachloroethane	Cellon, acetylene&tetraClethane	solvent, pesticide, weed killer, degreaser
1,1-Dichloroethane	Ethylidene chloride	extraction solvent, fumigant
1,1-Dichloropropene	(No data)	(No data)
1,2,3-Trichlorobenzene	(unknown)	insecticide for termites, organic intermediate
1,2,3-Trichloropropane	(unknown)	solvent, degreaser, paint & varnish remover
1,2,4-Trimethylbenzene	Pseudocumene	dyes, resins, perfumes, sterilizing catgut
1,3,5-Trimethylbenzene	Mesitylene	UV oxidation stabilizer for plastic
1,3-Dichloropropane	(No data)	(No data)
1,3-Dichloropropene	1,3-Dichloropropylene, Telone	soil fumigant, organic synthesis
2,2-Dichloropropane	(No data)	(No data)
Bromobenzene	Phenyl bromide	solvent, lube oil additive
Bromochloromethane	Methylene chlorobromide	fire extinguishers, organic synthesis
Bromodichloromethane	THM	(No data)
Bromoform	THM, Tribromomethane	geological assaying, solvent, med.(sedative)
Bromomethane	Ethyl bromide, Rotox	fumigant, wool degreaser, extraction solvent
Chlorodibromomethane	THM, dibromochloromethane	(No data)
Chloroethane	Ethyl chloride	refrigerant, solvent, anesthetic
Chloroform	THM, Trichloromethane	solvent, fumigant, pesticide
Chloromethane	Methyl chloride	refrigerant, herbicide, topical anesthetic
Dibromomethane	Methylene bromide	solvent, organic synthesis
Dichlorodifluoromethane	Freon-12, Halon	air-conditioner refrigerant, aerosol propellant
Fluorotrichloromethane	Trichlorofluoromethane, Freon-11	solvent, refrigerant, ext'shers, aerosol prop.
Hexachlorobutadiene	(unknown)	solvent, transformer & hydraulic fluid
Isopropylbenzene	Cumene, (1-Methylethyl)benzene	mfg. of phenol, acetone, solvent

m-Dichlorobenzene	1,3-dichlorobenzene	fumigant, pesticide
Naphthalene	tar camphor	moth repellent, fungicide, cutting fluid
n-Butylbenzene	1-Phenylbutane	organic synthesis of pesticides
n-Propylbenzene	1-Phenylpropane	textile dyeing, solvent for cellulose acetate
o-Chlorotoluene	1-Chloro-2-methylbenzene	solvent, dyestuff intermediate
p-Chlorotoluene	1-Chloro-4-methylbenzene	solvent, dyestuff intermediate
p-Isopropyltoluene	Cymene, Dolcymene	solvents, metal polishing
Sec-butylbenzene	(1-Methylpropyl)benzene	solvent, organic synthesis, plasticizer
Tert-butylbenzene	(1,1-Dimethylethyl)benzene	organic synthesis, polymer solvent, polymer linking

<i>REGULATED INORGANICS</i>	MCL
IOCs	(ug/l)

Antimony	6
Arsenic	50
Asbestos	7 million fibers /L
Barium	2,000
Beryllium	4
Cadmium	5
Chromium	100
Cyanide	200
Fluoride	4 mg/L
Mercury	2
Nickel	100
Nitrate	10 mg/L
Nitrate + Nitrite	10 mg/L
Nitrite	1 mg/L
Selenium	50
Thallium	2

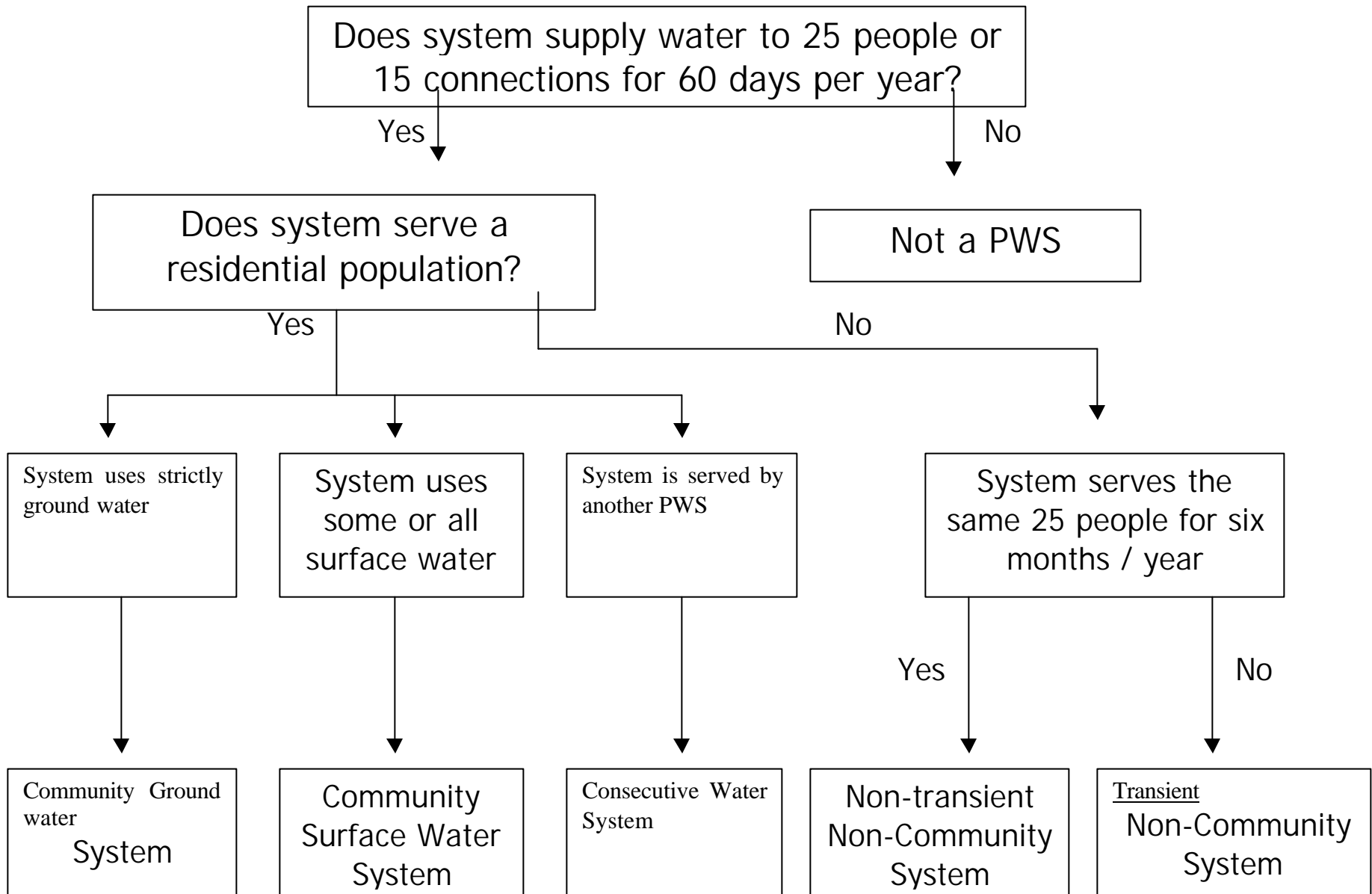
<i>OTHER PARAMETERS</i>	MCL or Action Level
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Gross Alpha Activity	15 pCi/l
Radium 226 + Radium 228	5 pCi/l
Trihalomethanes	100 ug/l
Turbidity	95% of all turbidity measurements <= 0.5 NTU w/ no levels > 5 NTU
Lead	90% of tap samples to have 15 ug/l or less of lead
Copper	90% of tap samples to have 1.3 mg/l or less of copper
Total Coliform	For system w/ 39 or fewer samples / month - if more than 1 sample is positive, system out of compliance. For system w/ 40 or more samples / month - if more than 5% of samples are positive, system out of compliance.
Fecal Coliform	Any repeat sample positive for fecal coliform OR any routine sample positive for fecal coliform that is followed by a positive repeat sample.
Giardia lamblia	Regulated by treatment technique by Surface Water Treatment Rule
Viruses	Regulated by treatment technique by Surface Water Treatment Rule
Legionella	Regulated by treatment technique by Surface Water Treatment Rule
Heterotrophic Bacteria	Regulated by treatment technique by Surface Water Treatment Rule

Definitions

MCL	maximum contaminant level
mg/L	milligrams per liter = part per million (ppm)
ug/L	micrograms per liter = parts per billion (ppb)
pCi/L	picocuries per liter
nematicide	agent used to control worms (especially round worms)
acaricide	agent used to control mites

Pubic Water System Determination Flow Chart



Chemical Sample Tracking Form

Water System _____ EPA ID# _____

Contaminant	Radiological	Inorganics	SOCs	VOCs	Asbestos	Lead/Copper	Nitrate	Nitrite
Frequency								
Last Sampled								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								
Next Due								

Instructions – Enter how often you are to sample for each contaminant in the “Frequency” boxes. The last date that each contaminant was sampled should be entered in the “Last Sampled” boxes. Now calculate the next time you must sample each contaminant using the sample frequency and last sampled date. Enter these dates in the “next Due” boxes. After the sample is actually collected, place a check in the small box next to the date. All questions on drinking water regulations may be referred to the Drinking Water Program, 523 E. Capitol Ave, Pierre, SD 57501. Phone: (605) 773-3754.